

WHAT IS CLAIMED IS:

1. A GPS RF Front End integrated within a wireless mobile terminal, the GPS RF Front End containing a Frequency Synthesizer comprising:

5 a Voltage Controlled Oscillator (VCO) for producing a Local Oscillator (LO) signal, wherein the LO signal has a frequency at approximately 1566 MHz;

10 a first fixed counter means, coupled to the VCO, for dividing the LO signal frequency by 41, to obtain a second signal with frequency of $LO/41$, wherein the second signal is an ACQCLK signal;

15 a second fixed counter means, coupled to the VCO, for dividing the LO signal by 31-and- $8/9$ ths, to obtain a third signal with frequency of $9/7$ times the frequency of the second signal, wherein the second signal is a GPSCLK signal, the second fixed counter means further comprising a first divide-by-4 counter, the first divide-by-4 counter having five outputs, each output having a frequency of $LO/4$;

20 a second divide-by-4 counter, coupled to one of the five outputs of the first divide-by-4 counter;

a first programmable count-down counter, coupled to the output of the second divide-by-4 counter;

a second programmable count-down counter, coupled to a Reference Frequency Signal, the Reference Frequency Signal being used by the wireless mobile terminal; and

a Phase Frequency Detector, coupled to the outputs of the first and second programmable count-down counters, for comparing the phase and frequency of the outputs of the first and second programmable count-down counters.

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